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(54) Title: METHOD FOR PREPARING $GE_{1-x-y}Sn_xE_y$ (E=P, As, Sb) SEMICONDUCTORS AND RELATED Si-Ge-Sn-E AND Si-Ge-E ANALOGS

(57) Abstract: A process for is provided for synthesizing a compound having the formula $E(GeH_3)_3$ wherein E is selected from the group consisting of arsenic (As), antimony (Sb) and phosphorus (P). GeH_3Br and $[CH_3)_3Si]_3E$ are combined under conditions whereby $E(GeH_3)_3$ is obtained. The $E(GeH_3)_3$ is purified by trap-to-trap fractionation. Yields from about 70% to about 76% can be obtained. The $E(GeH_3)_3$ can be used as a gaseous precursor for doping a region of a semiconductor material comprising Ge, SnGe, SiGe and SiGeSn in a chemical vapor deposition reaction chamber.

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[Continued on next page]

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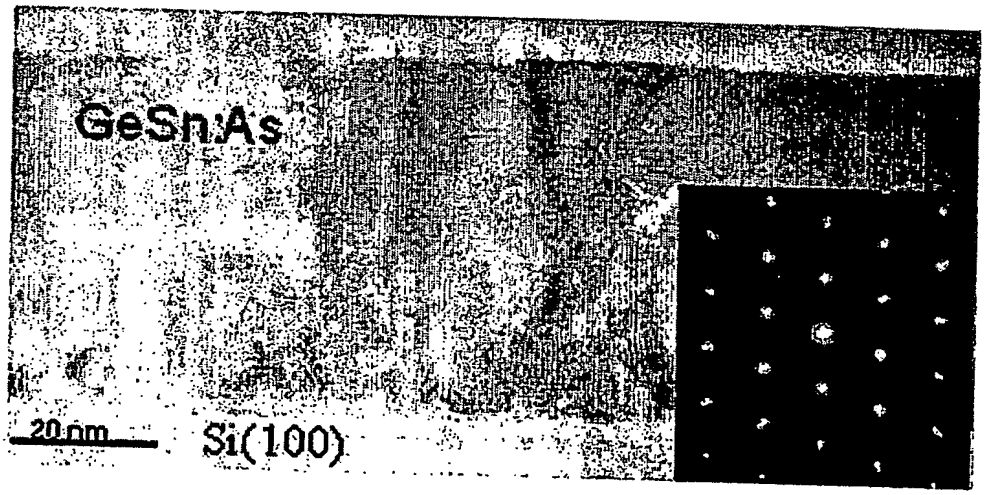

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